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ABSTRACT

Urban universities have a definite role to play within the context of strategic economic development. Coordination between state and local government, the private sector, and the academic community can lead to effective partnerships to formulate and implement economic development plans. Declining university enrollments and fewer dollars available for industrial research and development encourage collaboration, whereby the university shapes technology strategy more toward near-term applications, and the industrial sector transfers the technology being issued into the manufacturing environment to enhance competitive capabilities. The University of Toledo's partnership with Northwest Ohio industry serves as an example of such a partnership. This consortium was the recipient of a Thomas Edison Grant for the purpose of establishing a stand-alone corporation with emphasis on the development of advanced manufacturing technology and sophisticated training programs for employees and management in highly automated manufacturing environments. The goal of economic development coordinators should be to ensure that the academic components play a key role in industrial and regional economic revitalization. (PS)

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RESEARCH AND DEVELOPMENT

AND

THE ROLE OF THE URBAN UNIVERSITY

IN

STRATEGIC ECONOMIC DEVELOPMENT PLANNING

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ABSTRACT

One of the essential but usually neglected components in economic development or regional revitalization deals with the impact of university and industrial research and development. The urban university is playing an ever-increasing role as a contributor to industrial competitiveness through the establishment of strategic partnership linkages with the private sector.

The State of Ohio has established the Thomas Edison Program for the purpose of fostering closer academic-industrial linkages leading to the development of new and applied technology for the purpose of regional economic enhancement. The University of Toledo took the leadership in creating partnership arrangements with Northwest Ohio industry and other academic institutions. This consortium was the recipient of a Thomas Edison grant for the purpose of establishing a stand-alone corporation with emphasis on the development of advance manufacturing technology and sophisticated training programs for employees and management in highly automated manufacturing environments.

The University's role in economic development will be highlighted along with a discussion on the impact of research, development, and technology applications on economic development strategies.

INTRODUCTION

Only recently have academic institutions recognized that they can play a significant role in regional and national economic development; that is, in the direct fostering of economic growth and business activity. Those institutions which were successful in this undertaking forged close partnerships with the business community to develop new technology as well as to provide employee training and management development and re-training with the purpose of enhancing manufacturing productivity.

The partnership requires the not-so-easy fusion of two cultures--one business, the other academic. It will be the role of management to ensure that the essential elements of both cultures fit into a framework of mutual cooperation and support directed toward technology development.

Industry has also begun to realize that its "edge in competition" is being lost because of decreased quality and high costs of production as well as because of a protracted turn-around time for product development. Furthermore, it has been recognized that not being at the leading edge of competition results in the loss of jobs.

There are several reasons for the partnership, including: the dis-investment of business in new technology development and capital equipment; a cutback in human resources, particularly technical personnel; and the need on the part of universities to seek alternative avenues of funds for future growth.

ECONOMIC DEVELOPMENT

For the purposes of our discussion, economic development is an umbrella term encompassing those policies, procedures and tactics necessary for job creation, job retention, new business development, and community image enhancement.

The essentials of economic development will include:

- Industrial development
- Commercial development
- Community development
- Research and development

- Industrial Development

  + Identification of future potential growth opportunities within a given geographical region, such as plastics, biotechnology and telecommunications.

  + Also, strategies to sustain existing manufacturing baseline industries. Shift from manufacturing to service oriented industries may not imply loss of manufactured product volume, but, through efficiencies, a loss of jobs. The anticipated result is a more competitive industry because of a lower cost of doing business.

- Commercial Development

  + Retail and service oriented enterprises must be developed to be strategically consistent with the culture of the community. For example, the Detroit Renaissance Center struggled because the retail establishments were geared for a "New York" market and not for the Detroit market.

  + For those communities with a harbor, the strategic approach for economic revitalization would envision a synergy between downtown business activity and portside commercial dynamics.

- Community Development

  + Image enhancement of a community will be influenced by the exploitation of ethnic diversity through housing patterns and the development of local ethnic businesses.

  + Appropriate strategies can be employed to ensure a preservation of old neighborhoods while new housing patterns develop. Community development represents the most difficult of the economic development categories to measure because of the qualitative nature of its measurement, i.e., image.

- Research and Development

  + This represents the one area which has never been included within the rubric of economic development. It has only been in the last few years that academic communities and industrial research laboratories have

directed their attention in partnership to develop applied technology needed by small, medium, and large manufacturing businesses such that they can become more competitive.

+ The State of Ohio, through the Thomas Edison Program, has encouraged academic-industrial partnerships to develop new technology to be used by industrial enterprises to enhance regional economic vitality.

+ The University of Toledo, through its leadership with regional business, will be a member of the governing board of a "stand alone" corporation for the purpose of stimulating economic revitalization of Northwest Ohio. This corporation is funded through the Thomas Edison program and matching funds by the participating companies.

+ Not only will new technology be developed and applied to existing manufacturing businesses, but genuine technology developed out of core research may lead to the creation of new regional business enterprises.

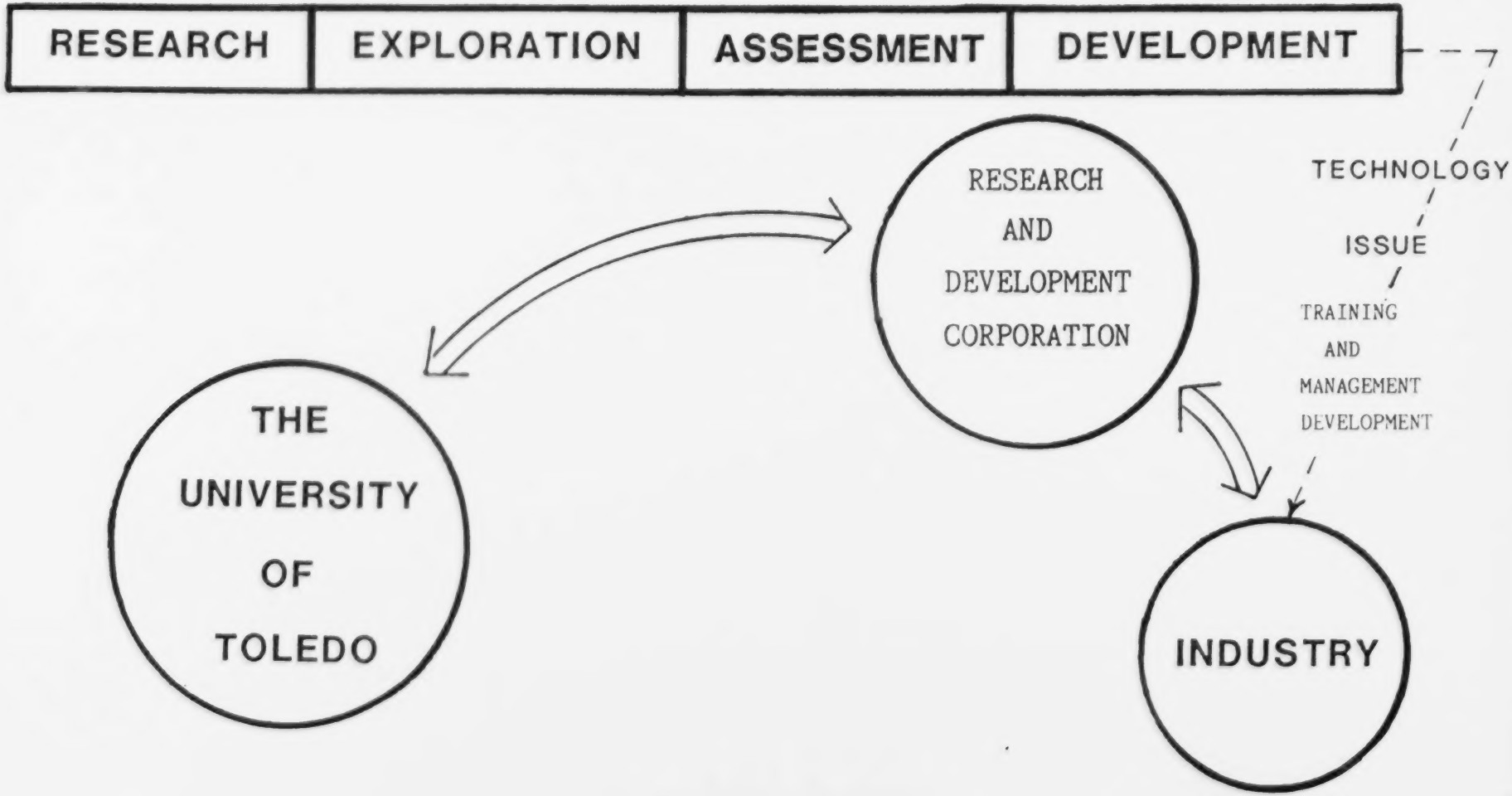
+ Furthermore, technology transfer will be enhanced by highly sophisticated training programs at The Community and Technical College of The University of Toledo, Owens Technical College, and at other two-year colleges in the region. These programs will provide management and employees training and development necessary for application to the automated manufacturing environment.

TECHNOLOGY TRANSFER

Although the four-year and post four-year colleges and universities have worked closely with industry in the development of manufacturing technology innovations, the capability to "transfer" technology more appropriately resides in the two-year colleges which have traditionally been more effective in gauging the "pulse" of industry's specific needs, and providing high levels of skills training.

Only with the advent of new manufacturing technology and its appropriate application has industry been able to regroup strategically to meet the challenges of international competition. New or current employees in a company must be trained in the use of this technology, and many companies have initiated in-house training programs to deal with this. However, many of these programs, being very narrow and too proprietary

PHASED TECHNOLOGY PLANNING



in nature, lead to a work force that is too "inflexible" to deal with the rapid changes in technology. In addition, many small firms have no training staff and therefore have little or no in-house training.

Higher education has not realized its full potential to contribute to the development of a newly trained and retrained work force. Too often, theoretical concepts have dominated academic approaches, with only oblique references to practical applications. Often, faculty have not been within the business environment for some time, and some have never had practical business experience.

The product development cycle culminates in the "issuance" of technology to the client industrial corporation. Normally there is a period of employees and management training and development associated with the application of this technology in the manufacturing environment.

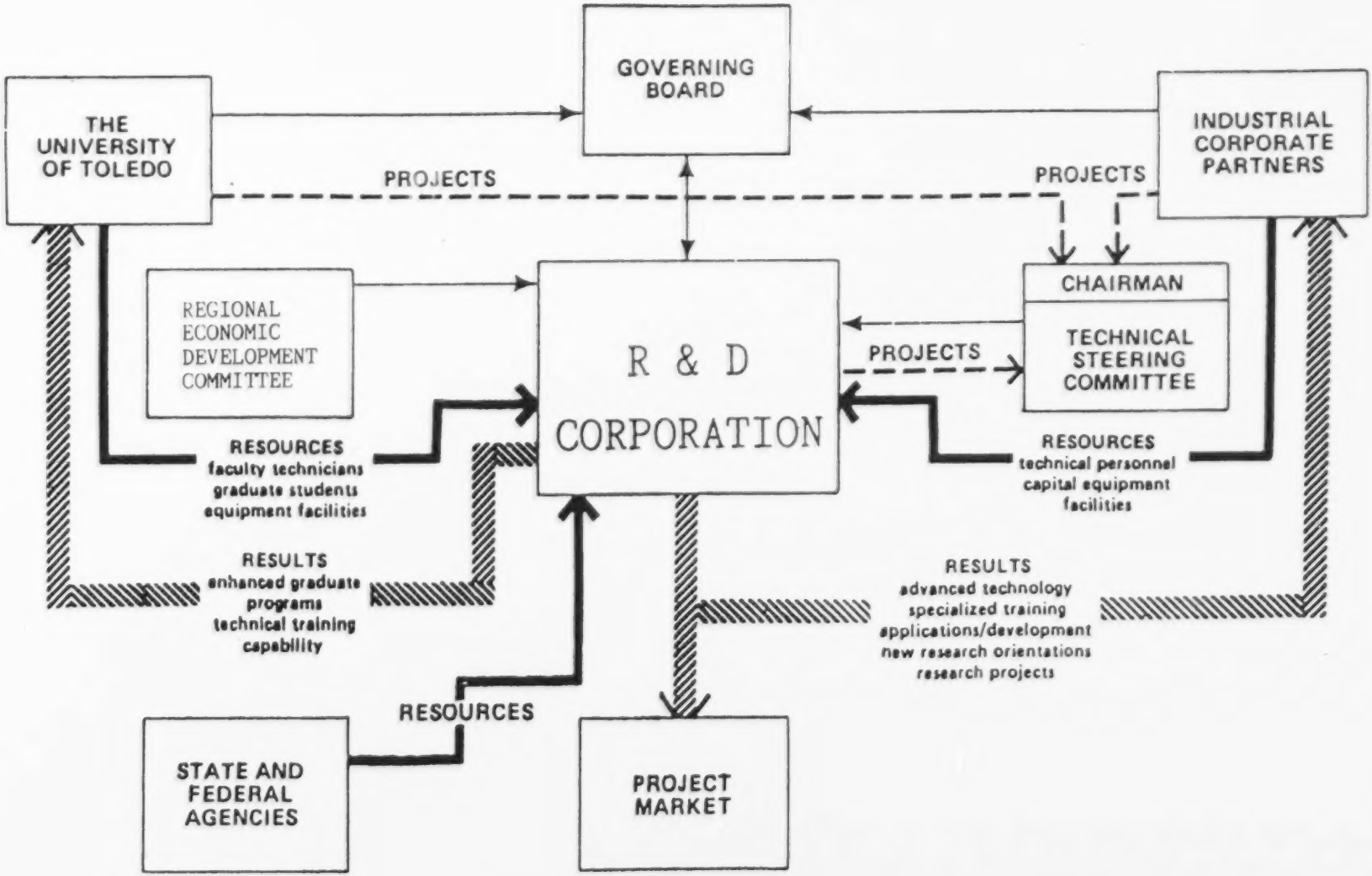
An effective "technology transfer" mechanism can be illustrated by a community and technical college and its applications or hands-on philosophy of technical vocational education. The University of Toledo has, as one of its eight colleges, a community and technical component whose faculty can work closely with the Colleges of Engineering and Business as well as with the R&D corporation to ensure that the training aspects of technology applications are "designed in" during the early phases of technology development.

This role for two-year colleges could be a model for their regional and national affiliations with technology corporations or with major universities dedicated to research and development functions.

STRATEGIC ECONOMIC DEVELOPMENT PLANNING

The basis for the formulation of a strategic plan relative to economic development rests on a "position audit" of the region; that is, the heartland business, regional economic strengths and weaknesses, financial, natural and human resources, and academic institutional profiles.

The long range regional growth and business diversification objectives should be established by a regional advisory committee comprised of Northwest Ohio economic development coordinators, who will represent local and county interests. This committee will also be the focal point for the channeling and structuring of regional economic issues.



UNIVERSITY'S ROLE IN REGIONAL ECONOMIC DEVELOPMENT

The University of Toledo will play an important role in the formulation and implementation of the economic development plan by:

- o providing a research and development input through the stand-alone corporation to effect productivity enhancements needed for the automated environment

- o developing technology transfer specifications for regional businesses under contract to the corporation to ensure that the appropriate training and developmental activities are conducted

- o offering undergraduate and graduate level managerial, general business and engineering courses (credit and non-credit) to assist business in the management of:

    + change
    + growth
    + diversity
    + technology
    + resources

- o providing the entrepreneurial impetus and physical facilities for start-up businesses (incubators) arising from new technology developments

- o conducting market surveys, technology assessments, and economic projections to support the planning process.

CONCLUSION

There is a definite role for the university to play within the context of strategic economic development planning. State and local government, the private sector, and the academic community can form an effective "triad" in the formulation and implementation of economic development.

The university has had a traditional image as being an institution for long-term exploratory research without immediate application. Today, with declining university enrollments and less dollars available for industrial R&D, the partnership between the academic and the industrial has become more apparent, whereby the university shapes technology strategy more toward near-term applications and the industrial sector transfers the technology being issued into the manufacturing environment for the purpose of enhanced competitive capability.

The most successful approaches to economic development have fostered a strategic linkage among individual, commercial and community development and research and development. Uncoordinated attempts at economic development planning will lead to disjointed implementation strategies resulting in a lack of regional economic vitality. It should be a goal of economic development coordinators to ensure that the academic components play a key role in industrial and economic revitalization.